

It is claimed:

1. A method for handling runtime objects operating on a wireless device,
wherein the runtime objects are instantiations of classes, wherein a class can
5 implement an object-oriented interface having methods, comprising the steps
of:
 - assigning, for a class, an interface ordinal to an interface based
upon a relationship existing between the class and the interface;
associating with at least one interface ordinal a reference that
10 points to an interface implemented by a class;
assigning, for a class, a method ordinal to an interface's' method
based upon a relationship existing between the class and the method;
associating with at least one method ordinal a reference that
points to a method of an interface;
15 wherein an assigned interface ordinal and an associated
reference are to be used to check whether a runtime object operating on the
wireless device is an instantiation of an interface;
wherein an assigned method ordinal and an associated method
reference are to be used to perform a dispatch of an interface's method
20 implemented by the runtime object.

2. The method of claim 1, wherein a direct interface check is performed to verify if the runtime object can be cast into the type of an interface by performing steps comprising:

providing class data for the runtime object in order to determine
5 what class type provided the constructor for the runtime object;
using the interface ordinals' association with the interface
references to check whether the runtime object is an instance of an interface.

3. The method of claim 1, wherein a dispatch is performed by performing
10 steps comprising:

providing class data for the runtime object in order to determine
what class type provided the constructor for the runtime object;
using the method ordinals association with the method
references to directly dispatch the method.

15

4. The method of claim 1, wherein a compiler system generates check and
dispatch information based upon an input set of classes and set of interfaces,
wherein the check and dispatch information includes the
interface ordinals, the interface references associated with the interface
20 ordinals, the method ordinals, and the method references associated with the
method ordinals, wherein the wireless device includes runtime storage to store
on the wireless device the assigned interface ordinals and their associated
interface references, .

5. The method of claim 4, wherein the runtime storage stores on the wireless device the assigned method ordinals and their associated method references.
- 5 6. The method of claim 5, wherein the runtime storage comprises runtime context which includes objects for which a direct check is performed and includes method calls on objects for which a direct dispatch is performed.
7. The method of claim 6, wherein the wireless device includes a runtime
10 processor and operates within a Java-based computer environment, wherein an assigned interface ordinal and an associated reference are to be used by the runtime processor to check whether a runtime object operating on the wireless device is an instantiation of an interface;
wherein an assigned method ordinal and an associated method
15 reference are to be used by the runtime processor to perform a dispatch of an interface's method implemented by the runtime object.
8. The method of claim 7, wherein a method call on the wireless device is
20 used as a trigger to invoke a direct check and direct dispatch using the check and dispatch information.

9. A system for handling runtime objects operating on a wireless device, wherein the runtime objects are instantiations of classes, wherein a class can implement an object-oriented interface having methods, comprising:

class interface check data structure, wherein the class interface

5 check data structure stores associations between interface ordinals and references to interfaces,

wherein the ordinals were assigned to interfaces such that a first constraint is substantially satisfied, wherein the first constraint provides that two interfaces are assigned different interface ordinals if there exists a class

10 that implements both of the interfaces;

class interface dispatch data structure, wherein the class interface dispatch data structure stores associations between method ordinals and references to methods,

wherein the ordinals were assigned to methods such that a
15 second constraint was substantially satisfied, wherein the second constraint provides that two methods have different method ordinals if there exists a class that implements both of the methods;

wherein the class interface check data structure is to be used to check whether a runtime object operating on the wireless device is an
20 instantiation of an interface;

wherein the class interface dispatch data structure is to be used to perform a dispatch of an interface's method implemented by the runtime object.

10. The system of claim 9 further comprising:

a compiler system that assigns the ordinals to interfaces such
that the first constraint is substantially satisfied, wherein the compiler assigns
5 the ordinals to methods such that the second constraint is substantially
satisfied.